

## WAFER HANDLING SYSTEM AND METHOD FOR USE IN LITHOGRAPHY PATTERNING

### ABSTRACT

The present invention includes a lithography system comprising a lithography patterning chamber, a wafer exchange chamber separated from the lithography patterning chamber by a first gate valve, and at least one alignment load-lock separated from the wafer exchange chamber by a second gate valve. The alignment load-lock includes an alignment stage that aligns a wafer during pump-down. An alignment load-lock according to the present invention can be uni-directional or bi-directional. Likewise, a lithography system according to the present invention can include one or multiple alignment load-locks. Also disclosed is a method of patterning a wafer within a lithography system. The method can include a first step of placing the wafer on supports within an alignment load-lock. In a next step, the wafer is aligned with respect to a chuck while the wafer is supported within the alignment load-lock on the supports. In another step, the wafer is secured to the chuck. And in yet another step, pump-down is performed to create a vacuum within the alignment load-lock.